an effective homogenization method and accurate detection. The ten most abundant proteins that appeared in all 12 runs and are listed in Table 1, along with the standard deviation. Decorin was the most abundant, followed by Prolargin and Collagen I. Finally, various widely used tendon markers were detected and quantified (relative abundance). As can be seen for Tenomodulin, TGF-ß, and collagen (Figure 2), abundance was surprisingly stable in the four biopsies.
Conclusions: This was a single-sample, preliminary proteomic study of healthy, young tendon. The results presented here demonstrate that a rice-grain biopsy is sufficient for the extraction of a large range of proteins, and that the process is repeatable between biopsies within the same patient. It is also an early glance into the content of Hamstring tendon matrix, showing the most abundant proteins. Interestingly, some of these have not been treated as tendon markers. Also interesting is the complete absence of Elastin. This matrix protein has been highlighted in past publications as critical for the mechanical properties of tendon, but was not detected in any of our samples. Finally, this study sets the ground for a larger study comparing pooled populations. Such data can increase our understanding of the healthy tendon, help identify tendon markers, and ultimately, tendon disease markers.

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QUANTITATIVE ANALYIS OF THE EFFECT OF NICOTINE IN THE HUMAN ARTICULAR CHONDROCYTE SECRETOME

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Purpose: Osteoarthritis (OA) is a very prevalent degenerative joint disease that is characterized by articular cartilage degradation, which requires efficient therapies. Previous studies of our group suggested that smoking might be a protective factor against OA. In this study, we aimed to evaluate the possible anti-inflammatory/anabolic role of nicotine as modulator of cartilage extracellular matrix (ECM) turnover using a proteomic approach based on metabolic labelling of proteins.
Methods: OA and Normal cartilage was obtained from patients undergoing joint replacement, and from normal donors without history of joint disease. Human articular chondrocytes (HACs) were isolated and primary cultured in a DMEM medium supplemented either with heavy isotopes of Arg and Lys or with their non-labelled versions for the SILAC (Stable Isotope Labelling by Amino Acids in Cell Culture) study. HACs were expanded until the complete labelling of their proteins was achieved. Then, cells were stimulated with Nicotine (10-500nM), IL-1β (a proinflammatory mediator, at 5ng/ml) or the combination of both compounds. For the proteomic study, HACs secretomes were collected, heavy and light samples were mixed 1:1 and then separated by SDS-PAGE prior to in gel-digestion with trypsin. Peptides were further separated and analyzed by nanoLC-MALDI-TOF/TOF mass spectrometry. The protein identification and quantification was carried out using ProteinPilot software.
Results: One hundred and ten (110) different proteins were identified in the secretome of normal and OA chondrocytes, 90% of them with a predicted extracellular localization. In normal chondrocytes treated with nicotine, we detected 13 modulated proteins; IL-6 and Fibronectine, two proteins involved in the inflammatory response proteins, were increased significantly. Extracellular matrix proteins such as MMP1 and MMP3 were also increased. In addition, results revealed a nicotine-dependent increase of a modulator of TGFbeta activity (LTBP2) and type VI collagen. In OA chondrocytes stimulated with nicotine, we detected 4 significant modulated proteins in the secretome, from of all them, COMP was decreased significantly.
Conclusions: We have studied the nicotine-mediated modulation of articular cartilage ECM proteins, using an *in vitro* model of primary HACs. These results suggest that, in our model of stimulated-IL-1 chondrocytes, nicotine (50nM) is not able to counteract the inflammatory effect caused by IL-1β (5ng/μL) on normal human chondrocytes.

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ASSOCIATIONS BETWEEN CHANGES IN IMPAIRMENTS AND TREATMENT RESPONSE FOLLOWING EXERCISE THERAPY IN SUBJECTS WITH KNEE OSTEOARTHRITIS

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Purpose: Exercise can improve pain and function in knee osteoarthritis (KOA) but the treatment effects are often small to moderate at best. Exercise programs for people with KOA are typically designed to address impairments that are believed to be contributing to pain, functional deficits and disability. However, there is very little evidence demonstrating that changes in impairments as a result of exercise actually are associated with better clinical outcomes. Such knowledge could help in identifying the active ingredients of response to treatment that could be emphasized through the refinement of existing exercise therapy paradigms for people with KOA. The purpose of this exploratory analysis was to examine the association of changes in impairment with clinical outcome in response to an exercise program for people with KOA.
Methods: This is an exploratory analysis of data from a randomized trial on exercise therapy in people with KOA. Data from 152 subjects were included in the analysis. Subjects had completed an exercise program consisting of lower extremity strengthening, stretching, range of motion, balance and agility, and aerobic exercises. Impairment measures included self-reported knee instability, quadriceps strength, knee range of motion, lower extremity muscle flexibility, fear of physical activity, anxiety, and depressive symptoms. The change from baseline to the 2 month follow-up visit was calculated for each impairment and change scores were then converted to a dichotomous variable of improved or not improved. Clinical outcome was a dichotomous variable of responder or non-responder, with responders being those who had a minimum of a 20% change from baseline in BOTH the Numerical Pain Rating Scale (NKPR) and the WOMAC physical function scale. The association of each impairment change variable with treatment response was examined with unadjusted logistic regression analyses. Those univariate associations significant at the .10 level were then included in a multivariate logistic regression mutually adjusted for other impairment change variables meeting this criteria along with age, sex, BMI, and exercise group.
Results: Change in knee instability, hamstring flexibility, knee extension range of motion, fear of physical activity, and depressive symptoms were each associated with a positive response to treatment. When these variables were included in the multivariate analysis, improvement in self-reported knee instability was associated with a 60% increase in odds of treatment response compared with those without improvement in knee instability (OR = 1.6, 95% CI[1.08, 2.24]) (see Table 1).

Table 1
Association of change in impairment with treatment response (Responder Vs Non Responder)

Impairment Change	Impairment Status	N	% Treatment Responders	Adjusted Odds Ratio(OR)	95% CI (OR)
Knee Instability	Not Improved	103	28.2	1.0	Reference
	Improved	49	49.0	1.6	1.08-2.24
Hamstring Flexibility	Not Improved	80	42.5	1.0	Reference
	Improved	67	28.4	.60	0.29-1.24
Knee Extension ROM	Not Improved	58	27.6	1.0	Reference
	Improved	89	41.6	1.8	0.86-3.90
Fear of Physical Activity	Not Improved	66	43.4	1.0	Reference
	Improved	86	56.6	1.8	0.83-3.76
Depressive Symptoms	Not Improved	78	41.0	1.0	Reference
	Improved	74	28.4	.51	0.25-1.06